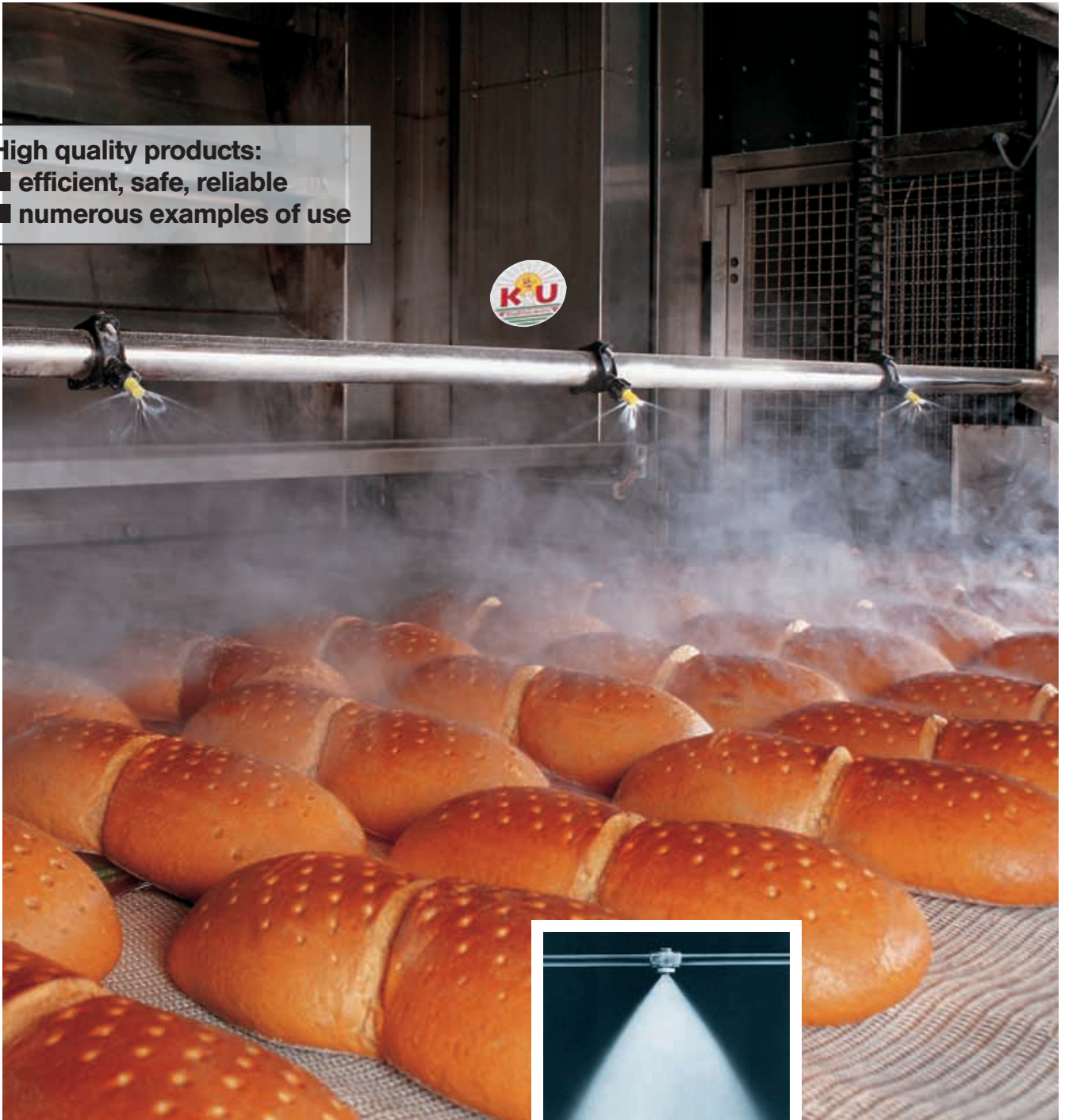




Spray Nozzles for the Food Industry

High quality products:
■ efficient, safe, reliable
■ numerous examples of use



Advanced spray technology based on 125 years of experience

Today's producers have to operate in a tougher environment than ever before, driven by:

- Customer demand for improved quality
- Constant pressure on costs
- Tighter pollution controls

Lechler nozzles and spray systems are used in virtually every stage of food production and their performance can have a major impact on product quality and manufacturing costs.



For over 125 years, Lechler has pioneered developments in spray technology for all industries, designing, developing and manufacturing products of outstanding reliability and performance. All accompanied by expert advice based on thorough knowledge gained through experience in providing both conventional and innovative solutions.

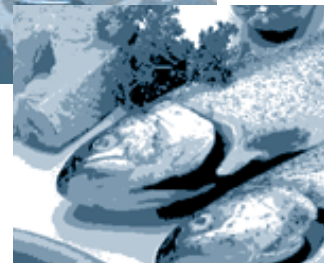


Today, Lechler offers the most comprehensive range of nozzles and spray systems available to industry worldwide.

Serving industry worldwide

Lechler is a truly international company, offering sales and technical support to diverse industries throughout the world. In addition to 300 employees at our Metzingen headquarters in Germany, subsidiary companies have plants and offices in the UK, the USA, India, China, France, Belgium, Spain, Sweden, Finland and Hungary. We also have a network of sales offices and representatives covering many other countries.

Wherever you are, Lechler seeks to establish a partnership, helping you to enhance product quality through the application of expertise in advanced fluids engineering.



How you can profit from our know-how

Lechler atomizing nozzles are the kind of system component that have a decisive role in the reliability and economic efficiency of entire processes. The main prerequisites, of course, are precision and quality – and atomizing nozzles by Lechler are well-known for both.

Lechler has a broad range of high-precision nozzles for use in the food-processing industry. Together with the competent consultancy services provided by our atomizing experts, they yield intelligent solutions tailored to your particular needs.

Indeed, Lechler-made solutions ensure optimal benefit at affordable prices.



Cleaning of tanks and systems

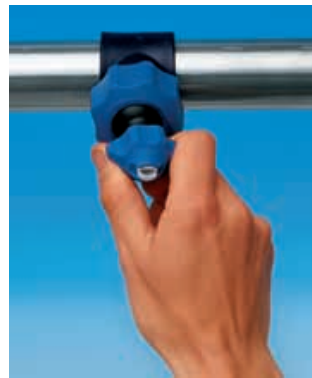


Various types of cleaning nozzles, special CIP nozzles

Advantages:
the right nozzle for every application

Benefits:
reliable, cost-effective cleaning

Mounting technology



Numerous intelligent mounting options

Advantages:
quick, accurate aiming of the spray jet

Benefits:
lower installation and maintenance costs, optimal process efficiency

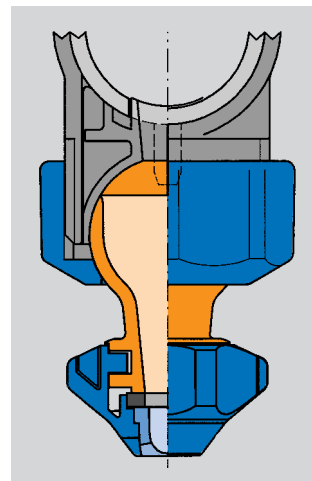
Pasteurization



Tangential hollow-cone nozzles, available in diverse sizes, angles and materials

Advantages:
non-clogging design, uniform distribution of liquid

Benefits:
high process efficiency, reliable function



Your advantages at a glance:

Safety:

- time-tested, reliable operation
- defined performance

Economic efficiency:

- optimized spray characteristics
- long service life

Easy handling:

- quick installation
- uncomplicated maintenance

Reliable Service:

- competent consultation services
- short-notice availability

...more examples

Spray drying:

- special-purpose single and twin fluid nozzles
- fine, tight droplet spectrum
 - small particles sizes, short drying times

Drying, sorting, blowing off:

- quiet air nozzles with low air consumption
- labor-saving operation

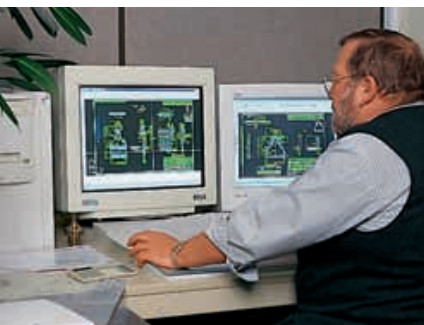
Moistening and disinfecting:

- Broad array of twin fluid nozzles and accessories
- ultrafine distribution of fluids
 - thrifty atomization of minute quantities

Lechler solutions for safe, reliable, economical production

Our experience for your benefits

With many years of experience in the market, Lechler atomizing nozzles have proven very successful and dependable in the hands of machine manufacturers, dealers and system operators the world over.



New approaches for heightened demands

Educated consumers demand high-quality, reasonably priced, safe processed foods with ecofriendly manufacturing. Their calls for longer shelf life with fewer preservatives can be satisfied by the application of strict hygiene standards combined with laws and regulations governing the design of machinery and processes. These have become a powerful influence in all phases of the industry.

Increasing competition, domestic and international, drives all processes to optimal performance. This includes cleaning and plant sanitation. Clean In Place (CIP) systems using Lechler products, can increase production and shorten downtime even in the face of increasing product diversity demands. Efficient plant operators count on nozzle technology from Lechler.



Lechler-engineered approaches to tomorrow's innovations

Social trends like the expanding number of single households, time-is-money agendas, and relative affluency are generating increasing demand for ready-to-eat convenience products. Promising combinations of food and bioactive additives marketed under the heading functional food are also generating additional consumption. For producers, the numerous product innovations emerging from the food industry often translate into greater depth of production, new technologies and new processes.

Intelligent spraying can be a major contribution toward the efficient implementation of innovative products and processes.

The spread of processed foods in all areas necessitates efficient process engineering. Lechler has cost-efficient, intelligent solutions to offer for practically all such processes:

- pasteurization
- cleaning of tanks, machines and systems
- cleaning of handling equipment
- lubrication and disinfection of conveyor belts
- cooling
- moistening
- sundry coatings
- jet cutting
- cleaning of parts and components
- high-pressure cleaning



Meat and fish products

The meat and fish processing industry is one of the biggest sectors of the food industry. Here, standards and consumers demand high levels of safety and quality. Lechler offers lots of alternatives for production and processing operations.

Typical applications

- cleaning handling equipment
- smoking processes
- cleaning cooking equipment



Convenience products

From bread & baked goods to ice cream and powdered soup – the already enormously broad spectrum of industrially processed products continues to expand. Atomization technology by Lechler can make major contributions toward better hygiene, process efficiency and innovation.

Typical applications

- cleaning tanks, containers and filling / bottling equipment
- coating processes
- spray drying



Fruit and vegetables

More fruit and vegetables than ever before are being deep-frozen, canned or otherwise further-processed immediately after harvesting. Here, high-precision nozzles by Lechler make washing, cooling, drying and processing more efficient than ever.

Typical applications

- cleaning fruit and vegetables
- sterilizing canned goods
- vegetable processing lines



Dairy products

The processing of dairy products is subject to stringent requirements regarding the hygienic design and thorough cleaning of the employed equipment. For this area, Lechler has engineered a range of special-purpose CIP cleaning nozzles that satisfy the strictest sanitary requirements of the American 3A-association and, hence, are superbly suited to diverse cleaning tasks.

Typical applications

- cleaning of mixers, storage tanks and other production equipment

Typical applications: We have the answers to your every need



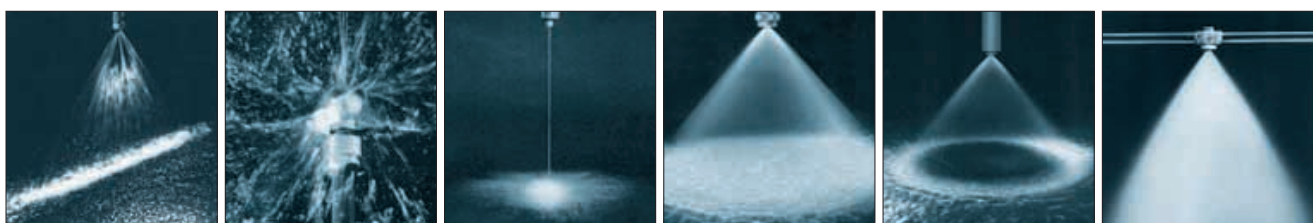
The following tables will help you to select which Lechler nozzle is the most suitable for your application within the food industry. The chapter numbers mentioned refer to our product documentation, in which you will find detailed ordering information.



The Lechler Spray Controller 360i is a powerful PID control unit dedicated to optimising the performance of Lechler spray products for various applications.

Cleaning and process technology in general				
Application	Technical requirements	Nozzle series	Typical duty parameters	Catalogue chapter/ brochure
Pasteurization	Uniform sprinkling, no clogging	Eccentric-flow hollow cone nozzles series 302	Approx. 20 l/min, 1.5-2 bar, \angle 90-130°	Chapter 2
		Tangential-flow full cone nozzles series 422		Chapter 3
Once-through washing of handling equipment (containers)	High cleansing power, accurate aim	Flat fan nozzles series 632/652	3-10 l/min, 3-5 bar, \angle 60°	Chapter 4
		Easy Clip series 676		
		MEMOSPRAY® series 676		
Conveyor-belt lubrication and cleaning	Minute-volume application, no clogging	Flat fan nozzles series 652.185-275 with accessories	3-12 l/h, 2-5 bar, \angle 75°	Chapter 4
Sorting and conveying	High blowing power, noise reduction	Whisperblast® compressed air nozzles	10-35 Nm³/h, 2-5 bar	Chapter 6
Cleaning of small tanks and pieces of equipment (\leq 1 m diameter), e.g., agitating chambers and fillers	High flushing effect, compactness	Self-rotating tank cleaning nozzles, spray balls	20-60 l/min, 1-2 bar, \angle 180°/360°	Tank cleaning
Cleaning of medium-size tanks and pieces of equipment (\leq 3 m diameter), e.g., mixers and fermenters	High jet force, low water consumption	Self rotating tank cleaning nozzles, spray balls	60-200 l/min, 1.5-2.5 bar, \angle 180°/360°	Tank cleaning
Acceleration of drying and cooling processes	High blowing power, noise reduction	Whisperblast® compressed air nozzles	Div. models, approx. 1-5 bar, 10-35 Nm³/h	Chapter 6
Alignment of mounts and nozzles	Ease of installation/removal, Fast and accurate jet adjustment	Quick-fixing systems	Div. models and materials	Chapter 4/9
		MEMOSPRAY® series 676	Div. models and materials	Chapter 4
		Easy Clip series 676	Div. models and materials	Chapter 4
		TWISTLOC series 092	Div. models and materials	Chapter 9
		Eyelet connectors ball joint	Div. models and materials	Chapter 9

The parameters mentioned in the table are only typical examples. They have to be adjusted to each different process.



Meat and fish products				
Application	Technical requirements	Nozzle series	Typical duty parameters	Catalogue chapter/brochure
Smoking chambers	Ultrafine atomization	Twinfluid nozzles series 136* (Full cone)	1 bar fluid, 3 bar air	Chapter 1
		Hollow cone nozzles series 212	< 5 l/min, 5-10 bar, \sphericalangle 60-80°	Chapter 2
Cleaning of cut meat	High cleansing power	Flat fan nozzles series 632/652	5-10 bar, \sphericalangle 30°-60°	Chapter 4
		Full cone nozzles series 460/461	2-3 bar	Chapter 3
High pressure cleaning, e.g., of handling and conveying equipment	High jet force, long service life	Flat fan nozzles series 602/608/652	Approx. 10 l/min, 80-100 bar, \sphericalangle 15°-45°	Chapter 4
Air conditioning for livestock	Ultrafine atomization	Twinfluid nozzles series 136* (Full cone)	< 5 l/min, 1 bar fluid, 3 bar air	Chapter 1
		Hollow cone nozzles series 212	< 5 l/min, 5-10 bar, \sphericalangle 60°-80°	Chapter 2
Wurst/sausage washers	Complete coverage	Full cone nozzles series 460/461	5-10 l/min, \sphericalangle 90°-120°	Chapter 3
Spraying of water for weight increase	Complete coverage uniform distribution	Twinfluid nozzle series 136*/176 (Flat Fan)	< 5l/min, 1 bar fluid, 3 bar air	Chapter 1

Convenience dishes, preserves, fruit and vegetable processing				
Application	Technical requirements	Nozzle series	Typical duty parameters	Catalogue chapter/brochure
Moistening/coating with herbs and spices/vitamins, icing/glazing, separating agents	Ultrafine distribution	Twinfluid nozzles series 136*	Minute quantities	Chapter 1
		VarioSpray Lechler Spray Controller	Processdependent	VarioSpray
		Twinfluid nozzles series 721	5-10 bar	On request
Spray drying/ granulating	Ultrafine distribution	Hollow cone nozzle series 2 SP	Process-dependent	On request
Cleaning of cooking utensils, mixers, filling machines	High flushing power, heat-proofness	Self-rotating tank cleaning nozzles, spray balls	20-60 l/min, 1-2 bar, \sphericalangle 180°/360°	Tank cleaning
Sterilisation autoclaves	Heat-presistant, non-clogging design	Full cone nozzles series 460	2-3 bar, \sphericalangle 90°	Chapter 3
Clean of can exteriors	High jet force	Flat fan nozzles series 632/652	Approx. 2 l/min, 3 bar, \sphericalangle 45°-60°	Chapter 4
On-belt washing of vegetables	High jet force no clogging	Flat fan nozzles series 632/652, Easy Clip 676	3-5 l/min, 2-3 bar, \sphericalangle 45°-60°	Chapter 4
Blanching of vegetables	No clogging, uniform distribution	Series 302	Approx. 20 l/min, \sphericalangle 90°/120°	Chapter 2

Dairy products				
Application	Technical requirements	Nozzle series	Typical duty parameters	Catalogue chapter/brochure
Cleaning of filling machines	High flushing power, hygienic design	Self-rotating tank cleaning nozzles, spray balls	40-200 l/min, 1-3 bar, \sphericalangle 360°	Tank cleaning
Cleaning of cheese molds	High jet force	Flat fan nozzles series 632/652	10-40 l/min, \sphericalangle 45°-60°	Chapter 4
		Full cone nozzles series 460/461/422	2-3 bar, \sphericalangle 30°-60°	Chapter 3
Cleaning of tanks and equipment components, e.g., mixers	High jet force, hygienic design	Self-rotating tank cleaning nozzles, spray balls	40-250 l/min, 1-3 bar, \sphericalangle 360°	Tank cleaning
Spray drying (e.g., powdered milk)	Ultrafine distribution	Hollow cone nozzles series 2SP	Approx. 10 l/min, 80-100 bar	On request
Spray germicides (H ₂ O ₂) on cheese	Ultrafine distribution	VarioSpray Lechler Spray Controller	Minute quantities, process dependent	VarioSpray

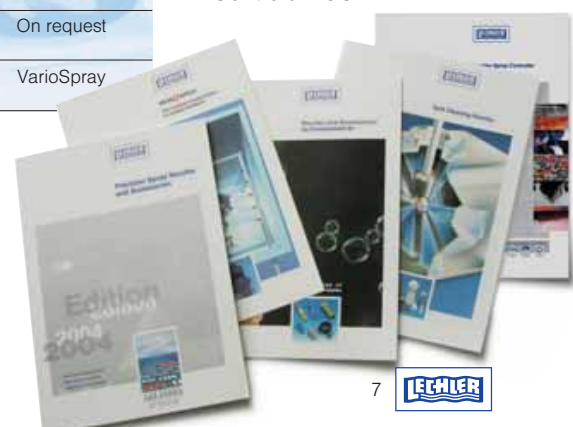
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*136 new nozzle generation, replacement of 156 nozzle



For detailed ordering information on Lechler nozzles for Food Industry please refer to the following documentation:

- Catalogue »Precision Spray Nozzles and Accessories«
- Brochure »Tank Cleaning Nozzles«
- Brochure »Nozzles and Accessories for Compressed Air«
- Brochure »MEMOSPRAY® - the intelligent Nozzle System for Surface Treatment«
- Brochure »VarioSpray«
- Brochure »Spray Nozzle for the Beverage Industry«
- Folder »Lechler Spray Controller LSC«



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Yes, I want to get detailed information on Lechler nozzles for the Food Industry!

Please send me the special information:

- Catalogue "Precision Spray Nozzles and Accessories"
- Brochure "Tank Cleaning Nozzles"
- Brochure "Spray Nozzles for the Beverage Industry"
- Brochure "Nozzles and Accessories for Compressed Air"
- Brochure "MEMOSPRAY® - the intelligent Nozzle System for Surface Treatment"
- Brochure "VarioSpray"

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